

THREE NEW OLD WORLD FLEAS.

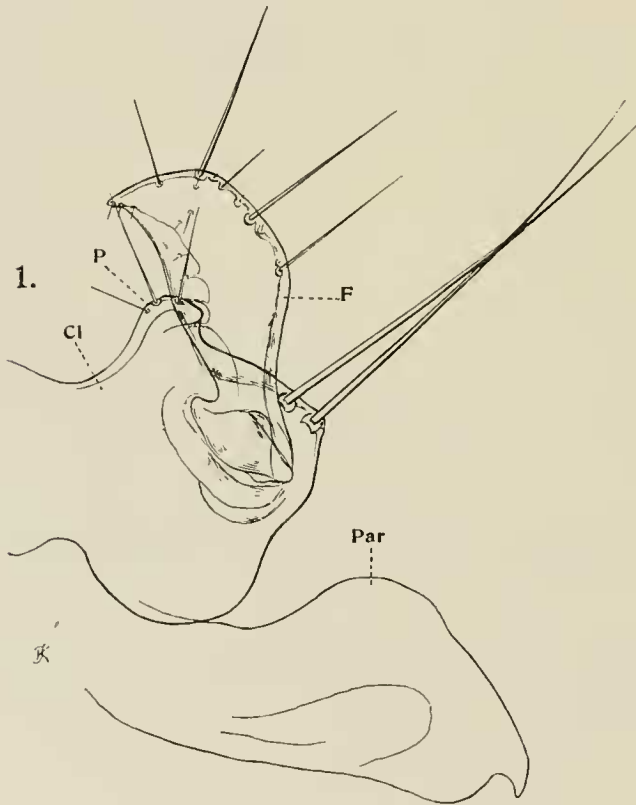
By DR. KARL JORDAN.

(With 6 text-figures.)

1. *Ceratophyllus infestus duratus* subsp. nov. (text-figs. 1, 2).

♂♀. Larger than *C. infestus infestus* Roths. 1908 from Kenia, and differing in the tail ends.

♂. Clasper shorter, ventrally more strongly convex and bearing two long acetabular bristles instead of one long and one short one (text-fig. 1). Manubrium a little less curved and the bay above it larger. Apex of exopodite F less curved.



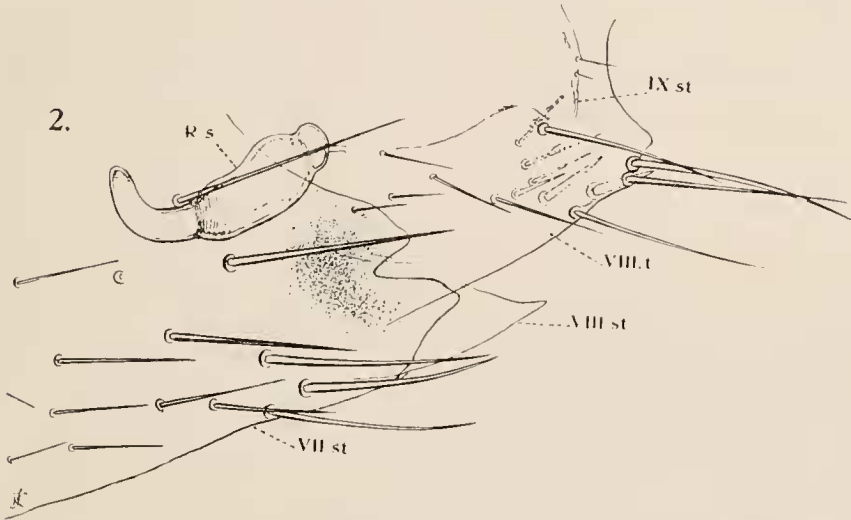
Vertical arm of IX. st. less excised on the posterior side above the elbow. Paramere (Par) more strongly convex dorsally, broader, and its apical hook more curved.

♀. Upper lobe of VII. st. shorter and narrower (text-fig. 2), the lower lobe more or less sharply pointed, the segment more strongly incrassate around the

sinus. The two long distal bristles of VIII. t. close together. Stylet longer than in *C. i. infestus*, three times as long as broad, or even longer.

Length of hindfemur : ♂ 0.67 — 0.69 mm. (in *C. i. infestus* 0.45—0.61).

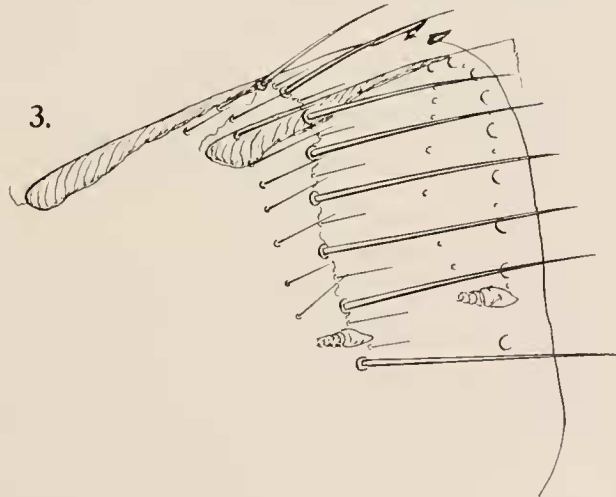
♀ 0.71 — 0.83 mm. (in *C. i. infestus* 0.61—0.71).



Tanganyika Territory : Mdehani, Ukinga, off *Aethosciurus byatti* subsp., 14.ii.1930, a series (type ♂); Igale, off *Heliosciurus spectabilis shirensis*, 25.iv.1930, 1 ♀; Rungwe Mt., off *Cricetomys gambianus viator*, 17.iii.1930 1 ♀. All collected by Mr. A. Loveridge, to whom we are much indebted for this new subspecies.

2. *Neopsylla kopsteini*
spec. nov. (text-figs.

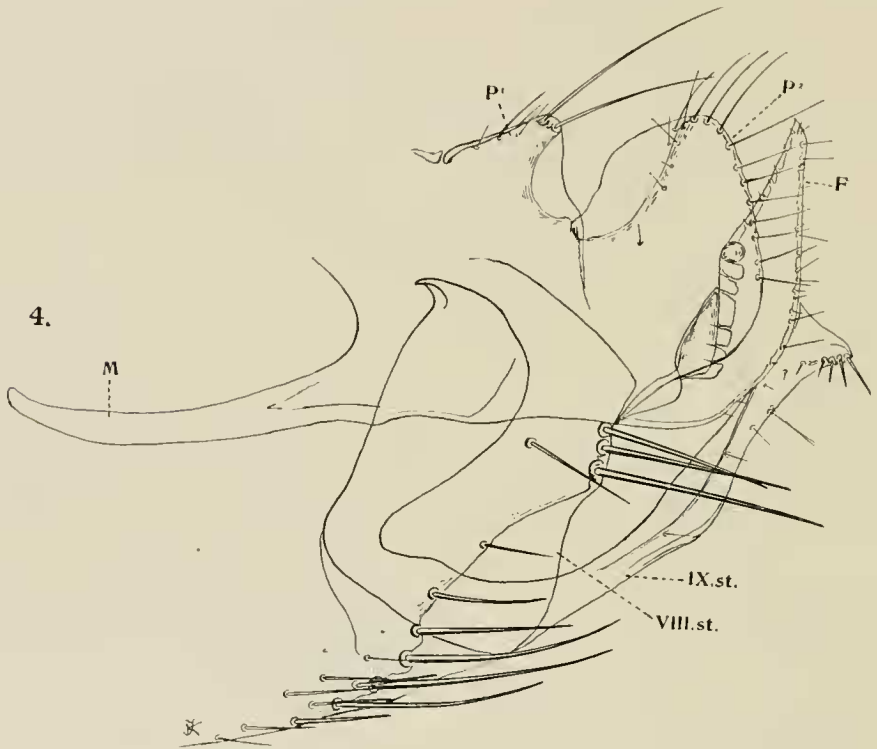
3, 4, 5).



♂♀. Though closely related to the species described in Nov. Zool. xxxvi, p. 220 and ff., the new species presents some striking differences: the chitin is much thicker, especially

dorsally, the dorsal area of the abdominal tergites being so strongly chitinised that the segments appear to bear, in a lateral aspect, a heavy incrustation extending from the base to the row of long bristles (text-fig. 3, IV. t. and base of V. t., ♀). Moreover, the metanotum and tergites 1 to VI are dorsally excised, the apical spines not standing in a vertical row, but the dorsal spine

being more proximal than the others (or other); the two rows of bristles are likewise curved forward above. On the anterior abdominal tergites there are from 4 to 6 apical spines on the two sides together, on tergite V 2 to 4 and on VI 1 or 2. The sternites bear a posterior row of 5 to 7 long and strong bristles on each side and about 6 smaller ones, most of the latter being ventral and many of them stout, on VII of ♀ the bristles are slightly more numerous than on the preceding sternites; the row is not vertical as in other species, but strongly oblique (text-figs. 4, 5). Behind the bristles, between the fourth long one and the



ventral margin, sternites III to VIII (in ♂ also VIII) are less chitinised than elsewhere, there being in cleared specimens a transparent space behind the row, as indicated in the figures.

Modified Segments.—♂ (text-fig. 4): on each side of VIII. st. an oblique row of large bristles and a number of smaller ones, about 15 altogether, farther upwards a row of 3 large marginal ones, proximally of which there is a single bristle, above the 3 the segment obtusely angulate, the marginal apical area from the 3 downward very feebly chitinised. Manubrium M. of clasper long and narrow, not much curved. Process P¹ of clasper with two long bristles and a few small ones; the thin marginal areas along the bay between P¹ and P² both of P¹ and P² broad; P² broader than in *N. arida* and *N. tricata* Jord. 1931, with about a dozen thin marginal bristles. Exopodite F angulate on frontal side about middle. Ventral area of IX. st. long and narrow, slightly widened in middle and at apex, the upper apical angle acute, projecting upwards, ventrally

at apex a row of 4, somewhat spiniform, bristles, continued by 3 smaller bristles, farther proximad 2 ventral and 3 lateral thin hairs.

♀. Sternite VII. laterally long and almost evenly rounded, the deep sinus of *N. sondaica* and allies (cf. l.c., p. 220) absent or at most slightly indicated. At and near apex of tergite VIII there are 7 to 9 bristles on outside and 16 to 20 on inside. Spermatheca as in *N. sondaica* (text-fig. 2, l.c., p. 221), its head dorsally a little straighter.

Length of hindfemur :
0.34 to 0.42 mm.

2 ♂♂, 4 ♀♀ from Java :
Rantjabali, 1650 m., off
Rattus lepturus, February
1931 (Dr. F. Kopstein).

A most interesting discovery.

3. *Ischnopsyllus indicus*
spec. nov. (text-fig. 6).

♀. We have had in the collection for a long time a female specimen close to, but not identical with, *Ischnopsyllus octactenus* Kolen. 1856, which we did not venture to describe as representing a new species. We have now received for determination another specimen, unfortunately also a female, which shows the same differences and renders it certain that the specimens belong to a new species.

In several species of *Ischnopsyllus* the females exhibit no, or quantitatively very small, differences from the nearest allies ; therefore the taxonomic value of the distinctions found in the two Indian examples must be estimated from that point of view. In *I. indicus* the internal incassation behind the oral spines (text-fig. 6) is longer and the horizontal portion of it narrower than in *I. octactenus*. The pronotal comb contains only 25 (type) or 27 spines, and that of the metanotum 25 or 26. The spines on the abdominal tergites are in type 26, 22, 20, 15, 10, 9, and in paratype 15, 22, 18, 15, 10, 8. There are no small bristles in front of the postmedian row on tergites II to VII. Sternite VII, which is not quite so strongly rounded in upper half as in *I. octactenus*, bears 7 bristles and 2 minute ones in type and 11 in paratype, on the two sides together. The rest as in *I. octactenus*.

North India : "Dimja Gali," off *Synotus darjelingensis*, 1 ♀, received from Oldfield Thomas, type ; Kasauli, off "small black bat," 27. vi. 30, 1 ♀ submitted by Dr. M. Sharif and returned to him.

